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Will, James James  
Address delivered by  
Mr. James T. Will, Secretary of  
Tennessee State Board of Education

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# ADDRESS

DELIVERED BY

## MR. JAMES J. HILL

BEFORE THE

### FARMERS' NATIONAL CONGRESS

MADISON, WISCONSIN



SEPTEMBER 24, 1908

THE UNIVERSITY OF CHICAGO

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It has often happened in gatherings to promote the interest of agriculture or irrigation or waterways or some other national undertaking, that so many side issues have crept in as to interfere with the work and weaken the conclusions of the convention. To avoid this error should be your first care; since it can have no effect upon a public that has learned to discount all so-called official utterances that are not germane to the body from which they issue and the subject to which they are supposed or pretend to relate; and since a wide scattering of subjects must prevent that full discussion of work and interests, which alone can make it worth while for you to assemble in gatherings such as this.

For this reason I will confine myself very closely in what I have to say to the present state of the agricultural interest in this country; to the emergencies which ordinary foresight can distinguish in its near future; and to those remedies and im-

provements which our knowledge suggests, and which are not merely experimental but ascertained fact. What we are here for is to consider how to increase the farmer's successes, lessen his failures and place his work upon the most certain foundation. His occupation is the first to exist in a civilized state. It is the basis of all other industry. And only recently we are coming to realize that it is an exact science. The man no longer deserves the name of farmer who conceives of his industry as a scratching of the earth, a hit-or-miss scattering of seed and a harvesting of such yield as soil and weather may permit. That is not farming, but a game of chance. This is, therefore, a gathering of representatives of a profession; and as such it is a first duty to consider the place of farm industry in the national economy, and to what extent it is prepared to meet present and future demands upon it. For grave national concerns, the state of civilizations, the condition of social life and the fate of institutions as well as the farmer's position and prosperity will depend upon his readiness to meet the work surely coming in the advancing years.

After an army has been raised and before it can enter upon any campaign, the first consideration is to provide its food. If that is a failure, the bravest and best organized force will melt away in a week. Our national supply of food, in like manner, is fundamental to the organization

of our social life and to the progress of all our industries. Here we have so many people. Here will be, in a few years, so many more. These things are mathematically certain. What demands will they make upon the country, and how well is it prepared to meet them? No question can be so fit for the consideration of a Farmers' Congress. Indeed, it is difficult to intelligently consider other questions until that one has been settled. And it is far from settled now. Until lately it seems scarcely to have been thought of, and it is generally dismissed with the vague assertion that "things will come out all right as they always have". A Farmers' Congress should understand and prepare for the work that lies before the farmer, not in some indefinitely distant future but within this and the next succeeding generation.

It is as well assured as any future event can be that the population of the United States will be 200,000,000 by about the middle of the present century, or in less than fifty years. This is proved by the ratio of increase in the past. It may come a few years later or a few years earlier according to circumstances, for good times lift both the immigration total and the domestic birth rate while depression decreases both. However, this is immaterial. Millions of persons now living will see the 200,000,000 people here; and the first question is how they are to be fed. There will be many

grave problems in such a human growth, but we may for the time being dismiss all the others until we have considered the primary one of the bare maintenance of life. The food problem itself has numerous collateral issues, but for the sake of simplicity we may here consider only the matter of bread. Where and how are we to obtain loaves enough to feed these coming millions?

The average yearly consumption of wheat per capita varies considerably with seasons and prices, but it rises steadily with our constantly advancing standard of comfort. For the last three years it has been either slightly under or slightly over seven bushels for bread and seed. Suppose that it is six and one-half bushels per capita, which is certainly within the mark. It will then require, unless we are to fall to a lower scale of living, a total product of 1,300,000,000 bushels of wheat for our bread supply, if we did not export any. From 1880 to 1906 inclusive, our crop averaged 521,738,000 bushels annually. Twice only in our history have we exceeded the 700,000,000 bushel mark. It is fair to say that 650,000,000 bushels is our present average capacity. Of course, with increasing population may come a somewhat increased total production, though it will not advance as rapidly as many suppose. We grew 504,185,470 bushels in 1882, when our population was a little over 52,000,000, and 634,087,000 bushels in 1907, twenty-five years later. The increase in

wheat yield, during these years when much of the new lands of the West was being brought under the plow, was a little over 25 per cent, while population increased 33,000,000, or over 63 per cent. Obviously supply and demand for bread will not keep pace through the working of any law of nature.

Moreover, the increase of possible wheat yield by increasing acreage is limited. We have no longer an unlimited public domain awaiting the plow. There will be some grown upon reclaimed arid land, though this is mostly devoted to the raising of fruit and fodder plants. There will be some land drained, and there are a few acres of public lands left where wheat may be raised. But a denser population makes new demands upon the soil; and it is more likely on the whole that the wheat acreage will be reduced, for raising all the other commodities consumed by two hundred million people, than that it will be enlarged. Nothing but a material rise in price could accomplish this; and we may, perhaps, assume that a steady and certain price of one dollar or a dollar and a quarter per bushel for wheat may raise our total annual product to 900,000,000 bushels, which would be fifty per cent more than its present average. This is the extreme limit of probability. The country could under present methods do no more unless it took land just as necessary for other purposes and devoted it to wheat raising. In

that case it would only imitate the man who tried to make the legs of his trousers longer by cutting strips off the bottom and sewing them around the waistband. We are left, practically, with a shortage of 400,000,000 bushels in our wheat supply, even supposing that we consume every grain that we raise. This amount we should have to procure from some other source. Where are we to get it, and how is it to be paid for?

Canada can send us something, but not much. By that time her own population will have grown, and her needs with it, and so will the demand of all the rest of the world. Russia and India and Argentina and Australia together are scarcely keeping up with the world's present necessities. Wheat bread and a high civilization go together; and as labor conditions everywhere improve, more and more people who once lived on black bread or rice will have the white loaf. But if we grant that the additional 400,000,000 bushels of wheat will be supplied from some now undetermined source, wherewith shall the bill be paid? We may assume that, by that time, an average price of a dollar and a quarter per bushel will prevail. This will leave us debtor to somebody in international trade to the amount of \$500,000,000. We must be prepared to send abroad that amount of some commodity to foot the bill. We must also make good the deficit occasioned by the cessation of our exports of breadstuffs and provisions. In the

year ending June 30, 1908, we exported wheat and wheat flour to the value, in round numbers, of \$164,000,000. That will be cut off. So we shall have to find nearly \$700,000,000 in all to pay our food bill. That is one-third of the value of our entire exports in the year 1908.

We cannot raise this vast amount annually by increasing exports. Already the products of the soil, the minerals and oils taken from the earth and such raw materials as leather and lumber, drawn immediately from earth's products, constitute two-thirds of our entire export trade. The whole of our exports of manufactured goods other than products of the farm amounted to \$480,700,000 in 1907. There is no fiction more firmly fixed in the American mind than that we are capturing foreign markets for our manufactured articles. For the most part we are only artificial competitors, and would have to withdraw from the foreign field if we were obliged to depend upon our own industrial merits. Our factories could not exist and pay the current scale of wages if they received for their total product the prices now charged the foreign purchaser. The American manufacturer markets his surplus abroad for what he can get, and recoups himself by the large profit which a high tariff permits him to charge the home consumer. I do not intend to touch here at all upon the merits or demerits of the tariff as an economic proposition. But I state a mere busi-

ness fact when I say that the profits secured to the manufacturer in the home market through prices kept high by protection alone enable him to sell even his small surplus of goods in the foreign market. Remove that, and our exports of manufactured articles would cease. Already Canada has a law against our dumping surplus manufactures in their markets. On an equal basis we could sell abroad only that small line of machinery which we make better than any other peoples. And the imitative Chinese and Japanese, as well as the workmen of Germany who are now educated in their technical schools, are constantly reducing the demand for our goods. We should never be able to make a much better showing than the figure we now cut in international commerce. Rather we will be more than fortunate to hold our own.

The relative advantage enjoyed in the past by reason of our possession of vast stores of unused raw material is disappearing. The time is approaching when we will be still less able to manufacture in competition with other peoples; when tariff walls could not be built high enough to keep out the intruder without crushing the life out of our own people. It is a matter of fact familiar to all of you that the progressive exhaustion of our forests has multiplied the prices of lumber within the past few years. Every farmer who has built a house or barn or even a fence, unless

he had timber for it upon his own holding, has felt the heavy tax. Now wood is an important item in manufacture, and the cost of production rises with its scarcity. Quite as disturbing is the situation with reference to those other prime necessities of cheap manufacturing and competition in the world's markets—coal and iron. We are using now nearly 500,000,000 tons of coal annually. At that rate the estimated total supply of the United States would last 4,000 years, and we need not disturb ourselves. But experience has shown that our consumption of coal doubles every ten years. That is the statistical record of the past. If it holds good in the future, and there is no reason why it may not, we shall be short of good coal at reasonable prices where it is most wanted before the end of the present century. This is the pinch that Great Britain now feels, in being obliged to resort to lower levels in her coal mines to obtain fuel for her industries at an enhanced cost. So serious is the situation that she is already considering the propriety of an export duty on coal. The same problem will face us in the future of which I am speaking.

Much more pressing is the question of iron supply. This metal is the foundation of the world's industrial life. Our possession of great quantities of rich ore in the most available localities is a great factor in our development. But last year we consumed 50,000,000 tons of iron ore; and at

that rate the principal supplies, those in the Lake Superior region, must be exhausted in about forty years. There are nowhere else such large deposits known, and the country has been prospected carefully. Perhaps the largest quantity anywhere outside of the Appalachian country and the great deposits in Minnesota, Wisconsin and Michigan is in Southern Utah. It is believed to amount to about 75,000,000 tons all told. It would last us, at our present rate of consumption, for eighteen months; and consumption of iron is increasing as steadily as that of coal. In 1897 our pig iron product was 9,652,680 tons; in 1907 it was 25,781,361 tons. It costs now about \$7 to transform a ton of Lake Superior iron ore into pig iron, including the cost of mining, transportation and manufacture. With 60 per cent ore, where five tons go to the making of three tons of pig, this makes the actual cost of the iron \$11.66 per ton. Fifty per cent ore makes iron costing \$14 per ton. Forty per cent ore makes iron costing \$17.50 per ton. Low grade ores, like those of the Southern states, can be used commercially because the ore, limestone and coal are found in close proximity, thus reducing the cost of manufacture.

But it is impossible for any of our product to compete today in the world's markets. The average selling price in 1907 of the cheapest grades of pig iron made in the United States was \$21.06 per ton; of the best, \$23.89. In Belgium, where

the cost of manufacture is decreasing all the time, the latest available statistics, those for 1905, show that the average market value of the country's entire pig iron product was \$11.64 per ton. Such a contrast mocks the idea of competition. In no year of the last ten has any such average price been known in the United States. Again the experience of Great Britain is instructive. She is obliged today to import one-half as much iron ore as she produces. She exports practically none; she obtained in round numbers 6,000,000 tons from Spain in 1906. The changes in her industrial condition have at this moment reduced Glasgow to treat with a besieging army of the unemployed, have brought 4,000 men in London to answer in person an advertisement for a porter at \$4.50 a week, and have practically given the government over to a growing socialism. We are not in that plight yet; but we are already where we cannot, without changing our wage scale and revolutionizing our industrial system, produce pig iron cheaply enough to compete with Europe. And forty or fifty years hence, with our enormously increased demand for the metal that has made progress possible, and our depletion of its supply, we shall be in no position to meet the foreigner in trade or to furnish from this source a fund to purchase food.

It is sufficient to state conditions thus broadly. They enforce their own conclusions. All the im-

portant items in consumption and in export show that we have a hard master to reckon with by the middle of this century; and that we must develop from some quarter occupation and a food supply for more than 110,000,000 additional people. It should be such as will maintain a standard of living no lower than that which now prevails if we are not to witness terrible social and political convulsions.

It is as clear as any future event can be that the farm is the only hope of our national salvation. Just as it is today the real source of our wealth, the mainspring of our domestic commerce that exceeds the trade of all Europe combined, so must we draw upon it for coming needs. All else suffers progressive exhaustion and will be a poorer dependence a generation hence than it is today. The soil alone renews itself, endures patiently, and is capable of yielding increasing rewards to industry as agriculture conforms more closely to the principles that science and experience have developed. The products of the earth and the population of the earth may increase together, so that the one will support the other. It is the sole escape from the melancholy conclusion to which Malthus was forced long ago because, in his time, the possibilities of modern soil culture were not understood.

Here, then, is the problem, here the labor for a Farmers' Congress. This is your work. You

must show how to make good the scarcity of food supply. To this occupation the country must look not only for bread but for employment, for the means of advancement, for stability of institutions and for individual happiness. The farmer must furnish an additional \$600,000,000 which we have seen will be necessary by 1950 to sustain the people. The task is stupendous. Yet it will not be found very difficult if we go to work in the right way.

I have stated the national problem in terms of wheat; its solution admits of similar statement. The average yield of wheat per acre in the United States in 1907 was 14 bushels. The average for the last ten years has been 13.88. That is, in 1907 it required 45,211,000 acres to produce the 634,087,000 bushels that we raised. It is a disgraceful record. About a century ago this was the average production per acre of Great Britain. After the appointment of a Royal Commission and a campaign for better methods of cultivation begun over a hundred years ago, today the fields of the United Kingdom, tilled for a thousand years, in a climate whose excessive moisture is unfavorable to the wheat farmer, yield over 32 bushels of wheat per acre. Germany, an agricultural country almost since the time of Tacitus, produces 27.6 bushels per acre. Suppose that the United States produced 28 bushels, or double its present showing. That would be no extraordinary record,

in view of what European countries have done with inferior soils and less favorable climates. It would have added 634,000,000 bushels to our product last year. Here we perceive the answer to the question that the future asks. Here we see how the 200,000,000 people or thereabouts in the year 1950 are to be fed. Here we see where the money must come from for our national support. It must be earned by and paid to the farmers of this country. Only thus may we escape an economic calamity more threatening and more real than the people realize. It will not come by wishing for it or by law-making or in any other way than through labor intelligently applied. It implies a greatly different agriculture from that which now prevails.

To reach an average yield of from twenty to thirty bushels of wheat per acre in this country is as feasible as to increase capital by lending money at interest. How it may be done has been explained so often and is today so thoroughly taught in every agricultural college and at every experiment station in the country that one almost hesitates to repeat it. I am not now referring to market gardening or the intensive agriculture properly so-called by which marvelous results have been obtained, which, in the Island of Jersey gives an annual income of \$250 per acre. It is possible to grow from 1,000 to 2,000 grains of wheat from a single grain of seed. There are rumors of ex-

periments in Russia with deep planting that leave this far behind, and even hint at transforming the wheat plant into a perennial. But leaving these extremes to the enthusiast or the experimenter, we can double our wheat yield by nothing more difficult than a better system of farming. The essentials of it are a study of soils and seeds, so as to adapt one to the other; a diversification of industry, including the cultivation of different crops and the raising of live stock; a careful rotation of crops, so that the land will not be worn out by successive years of single cropping; intelligent fertilizing by this system of rotation, by cultivating leguminous plants and above all by the economy and use of every particle of fertilizing material from the stock barns and yards; a careful selection of grain used for seed; and, first of all in importance, the substitution of the small farm, thoroughly tilled, for the large farm, with its weeds, its neglected corners, its abused soil and its thin product. The last makes room for the new population, whose added product will help to restore our place as an exporter of foodstuffs. The fruit farmer, the truck farmer, every cultivator of the soil who has specialized his work has learned to put these rules into practice as a matter of course. How to impress their force upon the thirty million or more persons who cultivate the land in this country is the problem. It is no longer one of method. Science has settled that,

and is adding more and more of value every year. It is merely how to move the farmer to apply to his own profit and the rescue of the nation the better methods that are a familiar story.

It should appeal to him that the modern system is both a money-maker and a labor-saver. The cost of rent and production for continuous wheat cropping averages \$7.50 per acre. When, therefore, the farmer obtains, as so many of those in the Northwest do, a yield of eight or ten bushels per acre, it just about meets, at average farm prices, the cost of production, leaving him either nothing at all for his year's toil or else a margin of debt. For the same amount of labor, covering the same time but intelligently applied to a smaller area, he might easily produce by improved methods twenty bushels per acre, leaving him a profit of over \$12. The not unreasonable yield of 28 bushels would net him \$20, which is ten per cent on a valuation of \$200 per acre for his land. This gigantic waste, applying the same measure to the production of the entire country, is going on every year. If such associations as this Congress can stop it, it will pay for building two Panama canals every year; it will in two years more than pay the estimated expenses of improving every available waterway in the United States; it will save more money to the farmer than the railroads could if they carried all his grain to market free of charge.

What is true of wheat is true of all the other products of the farm. The splendid work done in this state where we are met is to the point. The average yield of corn in Wisconsin has been raised, by the application of scientific methods, from 27 to 47 bushels per acre. The new value thus created in a single state for a single year amounts to about \$15,000,000. I need not go into other details, because they are similar in kind and any one may examine them for himself. Such increase of the national wealth, such additional reward for labor waits upon the adoption of the best methods in every department of agriculture. Other peoples have been quicker to learn it than we. Denmark has an area of less than 16,000 square miles, a little less than one-fifth that of Minnesota, and a population in 1906 of 2,605,268. Only 80 per cent of her area is productive, and her population is 167 per square mile. Yet in 1906 she sent abroad over \$80,000,000 worth of her home product of provisions and eggs. Great Britain bought from her that year butter to the amount of \$48,000,000 and bacon worth over \$21,000,000. It is interesting in this connection to note that, though her population is so dense, there were in 1905 but 754 men and 69 women in her penitentiaries.

The Netherlands is a still more closely compacted population of 5,672,237 on an area of 12,648 square miles, or 448 per square mile. The

advantage of this is that it forces small holdings and a more thorough tillage. The average wheat yield in the Netherlands is 34.18 bushels as against our 14; she produces an average of 53.1 bushels of oats per acre, where we are satisfied with 23.7 bushels in 1907 and an average of less than 30 bushels for the preceding ten years; her farmers gather 232 bushels of potatoes from every acre so planted, while in this country, with soil capable of fabulous yields, we took in 95.4 bushels last year and averaged a trifle less than 96 bushels for the last six years. The difference between 95 bushels and 230 bushels, at 50 cents a bushel, is over \$60 per acre. Rather a heavy loss to pay for poor farming! It is not to be wondered at that the Netherlands hardly larger than a big county out West, after deducting enough for home consumption, exported more than \$140,000,000 worth of cereals, flour, butter and cheese; and that her people do not have to pay any poor rates.

To such a height we can bring the productivity of many of our own fields. When we have done so, and only then, will the specters that haunt our future vanish and the questions that it now puts to us receive an answer worthy of men careful of their future and thoughtful for their race. Every respectable authority on agriculture in the country will indorse this statement. But at present we are doing little practically, out on the land, among the farmers, to accomplish the change, the

revolution in ideas and methods that is involved. It seems to me that this is the paramount duty and mission of an organization such as this. It could well afford to throw aside most other issues presented for its consideration, refuse to spend time upon alien or abstract questions and concentrate its energies and resources upon a campaign for better farming in the United States. For, indeed, this reform makes way slowly. It required over half a century in Great Britain to bring it about, although aided by the influence of the great landed proprietors. It is no new doctrine in this country. I have been urging the essentials of better farming upon our whole people at every opportunity for more than twenty-five years. In all the agricultural colleges of the country it is taught. Farmers' Institutes have done much to make it known. And still bad methods, soil exhaustion, skimming the cream of the land by single cropping, are the rule instead of the exception. The once matchless fields of the Northwest are deteriorating. The average wheat yield has fallen on some of our best land from twenty-five bushels or more to about twelve. Something must be done to reverse the process. By constant iteration of well-established truths, by the appeal to self interest, since the farmer can double his own gains for the same labor, by endless agitation and patient instruction the work may be accomplished. That it must be done is the most important fact

confronting us as a nation today. The armed fleets of an enemy approaching our harbors would be no more alarming than the relentless advance of a day when we shall have neither food nor the means to purchase it for our own population. The farmers of the nation must save it in the future, as they have built its greatness in the past.

My suggestion, then, would be that each one of you individually and this association as a whole subordinate every activity to the educative idea; that you expend energy and resources without stint upon spreading everywhere a knowledge of the necessity, the feasibility and the financial profit of improved farming methods. Work with your senators and representatives, and with your state legislatures, if necessary, for the establishment of model farms in every congressional district, and if possible in every agricultural county in your respective states. Nothing would be so effective as this practical object lesson. Every slack farmer would see the contrast between his fields and his own. Every man with a germ of intelligence would get more ideas and facts and insight into methods and the reason for them in a year by living as a neighbor to a well run model farm, conducted by an expert in agriculture, than he would in a lifetime from reading books or listening to stump speeches. Above everything else, send your boys and girls, and insist that the farmers whom you know and can influence shall

send theirs to the agricultural colleges where modern systems of tillage are taught. The opportunity is ample. There are sixty-three colleges and universities now receiving aid under acts of congress as a condition of maintaining a course in agriculture. Keep them, if you possibly can, good agricultural schools, and save them from the temptation of trying to ape the airs of the university. They are today the most useful, the most fruitful educational institutions in the country. See that the children of the farm go where they will not be taught to despise the soil or long for a future freed from its labors; but will learn the fact, now being fully understood, that the right kind of farming offers scope for the keenest intelligence, occupation for the most active brain and opportunity and reward for the highest ambition.

After all it is to the next generation mainly that we must look for the transformation of our greatest and most vital industry, though something may be done with this. In both fields, the man who assumes to be the farmer's friend or hold his interests dear will constitute himself a missionary of the new dispensation. It is an act of patriotic service to the country. It is a contribution to the welfare of all humanity, and will strengthen the pillars of a government that must otherwise waver in some popular upheaval when the land shall no longer sustain the multiplying children that its bosom bears. It is a high commission that is offer-

ed to you. By accepting it you will confer new dignity, worth and satisfaction upon the calling in whose name you are gathered here, and help to garner health and comfort and happiness and an opportunity greater than our own for the coming millions; who are no strangers or invaders, but our own children's children, who will pass judgment upon us according to what we have made of the world in which their lot is to be cast.





HD Hill, James Jerome  
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1908 Mr. James J. Hill before the  
H5 Farmers' national congress

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